INDEX TO 1972 *A/A* VOL. 10, NOS. 1-12

SUBJECTS

AIRCRAFT DESIGN AND OPERATIONS

Prototypes: The Fight to Switch, Jan., p. 9.
Operational Constraints in Air Transport, Jan., p. 22.
The New Civil Aviation Within Our Grasp, Jan., p. 30.
Report on the Vehicle Technology Conference—Future Shock at Langley, Jan., p. 35.
Canada's Head Start in STOL, Jan., p. 38.
Concorde: Options to Orders, Feb., p. 10.
Representing VTOL Developments, Feb., p. 20.
Civil Air Transport—Position paper and panel discussion—The Future of a Maturing Industry, March, p. 20.
"A" for Aeronautics, April, p. 13.
Theoretical Investigation of the Aerodynamic Characteristics of All-Flexible Parawings, April, p. 60.
RMVs in Aerial Warfare, May, p. 36.
Air Cargo Confidence, May, p. 48.
General Aviation: Who Chopped the Throttle?, June, p. 10.
CAS: Answers But No Solutions, June, p. 12.
Evolving Strategic Air Power and B-1, June, p. 22.
R&D Pays Off for Inlet-Engine Matching, June, p. 64.
Part II—CAS: Answers But No Solutions, July, p. 12.
Transpo '72 Reflects Battle of Priorities, July, p. 16.
Aircraft Designers Engage the System, July, p. 22.
New Patterns for a Healthy Aviation, July, p. 66.
Helicopters! To the Rescue at Major Air Terminals, Aug., p. 15.
Keeping Air Leadership, Aug., p. 26.
Supercritical Aerodynamics Worthwhile Over a Range of Speeds, Aug., p. 32.
Holography for Aerodynamics, Aug., p. 56.
Cleveland-Akron Section Weighs the Lake Erie International Jetport Project, Aug., p. 74.
Aeroelasticity in Turbomachines—A Field all Aflutter, Sept., p. 56.
Noise A Triumph of Ignorance? (1972 Wright Brothers Lecture), Oct., p. 20.
Dirigibles: Aerospace Opportunities for the '70s and '80s, Nov., p. 32.
The Issues Before Us: Air Transportation, Dec.,
Climatic Impact Assessment for High-Flying Aircraft Fleets, Dec., p. 56.
New Design Goals and a New Shape for the SST, Dec., p. 66.

COMMUNICATIONS AND COMPUTERS

Implications of Computers Telephone Size, Jan., p. 20.
Trends in Technology for Communications Satellites, April, p. 36.
Domestic Satellite Decision Near, June, p. 8.
Onboard Digital Computers for Guidance and Control, Aug., p. 22.
Domsat: A Hold in the Countdown?, Sept., p. 11.
Elastic Surface Waves—Many New Applications, Nov., p. 50.
Simulation Aids for Designing Integrated Information Systems: ECSS Language, Nov., p. 68.

EDUCATION

New Blood Drying Up, Jan., p. 13.
On the Job Market for Engineering Graduates, Feb., p. 5.
Secrets of the Winningest Student Chapter, April, p. 70.
Is Aerospace Engineering Obsolete?, June, p. 14.
High School Members for AIAA, Nov., p. 21.

ENVIRONMENTAL SCIENCES

Harnessing the Sun, July, p. 6.
Better Marks on Pollution for the SST, July, p. 37.
Remote Ocean Mining, July, p. 62.
The Predicament of Mankind, Aug., p. 11.
Advanced Propulsion Cleaner & Quieter, Aug., p. 37.
Aircraft-Noise Conference Held at NASA-Lewis, Aug., p. 76.
Weather Cooperation Knows No Political Seasons, Sept., p. 9.
Investments for Engineers, Sept., p. 66.
Transportation: Fueling the Right Growth, Nov., p. 12.
Climatic Impact Assessment for High-Flying Aircraft Fleets, Dec., p. 56.
New Design Goals and a New Shape for the SST, Dec., p. 66.

GUIDANCE AND CONTROL

Spacecraft Attitude Stability and Control, March, p. 18.
Remote-Manipulator Subsystem Technology-State of the Art, June, p. 34.
Onboard Digital Computers for Guidance and Control, Aug., p. 22.
Active Controls Changing the Rules of Structural Design, Aug., p. 50.
The Best Way From Here to There (And Perhaps Back Again), Nov., p. 5.
Introducing the Electrostatic Autopilot, Nov., p. 22.
Mariner Jupiter-Saturn in 1977—The Mission Frame, Nov., p. 42.

HISTORY

An Aerospace Chronology, Sept., p. 71.
Wiley Post, His "Winnie Mae," and the World's First Pressure Suit, Sept., p. 73.
Noise, A Triumph of Ignorance? (1972 Wright Brothers Lecture), Oct., p. 20.
Rocketry in the '50s, Oct., p. 38.
The Spartan Beginnings, Oct., p. 40.
Freedom to Act Fast, Oct., p. 41.
Political Bugs, Oct., p. 44.
Looking for the Sweet Combination, Oct., p. 52.
Breaching the Chinese Wall of 100 Approvals, Oct., p. 57.
Launch on December 63rd, Oct., p. 60.
Navy Within a Navy, Oct., p. 63.
An Aerospace Chronology, Oct., p. 66.
Dirigibles: Aerospace Opportunities for the '70s and '80s, Nov., p. 32.
An Aerospace Chronology, Nov., p. 41.

HYDRONAUTICS

Creating New Cities Through the Large Air-Cushion Vehicle, Jan., p. 46.
Sailing Blimp for Real Salts, May, p. 6.
Navy Looks Toward New Forces, May, p. 12.
Why All the Excitement About Aquaculture?, May, p. 24.
With the 6th Fleet in the Mediterranean—An Outpost for the Designer, July, p. 32.
The Un-Man in the Sea, July, p. 56.
Remote Viewing and Search, July, p. 57.
Remote Recovery, July, p. 59.
Remote Ocean Mining, July, p. 62.
Remote Work and Manned Vehicles, July, p. 64.
High-Speed Sea Craft, Sept., p. 16.

INSTITUTE AFFAIRS

Advanced-Degree Accreditation: Yes? or No?, Jan., p. 72.
Transmeet, Jan., p. 76.
Tax-Free Professional Societies: Time to Earn Their Subsidy, Feb., p. 14.
AIAA—How Shall We Live?, Statement by the AIAA Structures Committee, Feb., p. 16.
A Vital Message to Carry, Feb., p. 24.
The Aerospace Profession in Retreat, Feb., p. 26.
A Portable-Pensions Resolution, March, p. 5.
Momentum to New Projects, AIAA Board Report, March, p. 16.
1971 President's Annual Report, March, p. 52.
1972—Who's Who in AIAA Technical Committees, March, p. 68.
The Revolt of the Engineers, April, p. 14.
Enthusiasm with Restraint, April, p. 24.
What Journal Changes Would Best Serve You While Countering Rising Publication Costs?, April, p. 56.
A Short Guide to AIAA's Honors and Awards, April, p. 70.
AIAA Studying Washington Office, May, p. 77.
Cortright Asks for AIAA Action Teams on "Purpose, Federation, and Communications," June, p. 72.
Every Inch a Struggle, July, p. 31.
VEST Enrollments Stay High, July, p. 76.
Federation—Why So Long?, Aug., p. 24.
Washington Office Approved, Sept., p. 14.
Statement by the Pension Committee to the Board of Directors, July 28, 1972, Sept., p. 76.
Engineering Societies Quiz the Presidential Candidates, Oct., p. 4.
AIAA Publications Alive and Well, Oct., p. 18.
A Message from the AIAA Pension Committee, Oct., p. 68.
Results of the Questionnaire on Publications, Oct., p. 70.
AIAA Opens Its Washington Office, Nov., p. 6.
IAS' 40th Anniversary, Nov., p. 77.
Aerospace and the Public Interest—The Issues Before Us, Dec., p. 18.

INTERNATIONAL SCENE

Concorde: Options to Orders, Feb., p. 10.
IAF Makes UN Bow, July, p. 13.
Joint U.S.-USSR Space Flight—Ready for Management, July, p. 14.
Space: Productive of Meaningful International Discourse, July, p. 15.
Texts of the U.S.-Soviet Agreements on Cooperation in Space Exploration and In Science and Technology, July, p. 20.
New Patterns for a Healthy Aviation, July, p. 66.
The Impact of SALT, Aug., p. 71.
1976 International Skylab?, Sept., p. 5.
Space Cooperation: A Growing Political Force, Sept., p. 6.
Weather Cooperation Knows No Political Seasons, Sept., p. 9.
Space and International Cooperation—Impetus from the New Accord, Sept., p. 19.
Space Shuttle—Beginning a New Era in Space Cooperation, Sept., p. 20.
Space Observations, Disarmament, and the U.N., Sept., p. 60.
Overseas Competition Ganging Up, Nov., p. 14.
ICAS Tracks Noise, SST and HST, and V-STOL, Nov., p. 75.

MANAGEMENT

Bill of Rights on Procurement?, Jan., p. 8.
FCRCs: Divining Their Own Future, Jan., p. 11.
Getting Whole Blood in Technical Transfusions, Jan., p. 19.
Let's Beat the System, Jan., p. 29.
Tax-Free Professional Societies: Time to Earn Their Subsidy, Feb., p. 14.
The Aerospace Profession in Retreat, Feb., p. 26.
House Passes Technology-Assessment Bill, March, p. 14.
Technology and National Growth, March, p. 35.
The Rise of Remotely Manned Systems: Beginning a Series on the Tools That Will Shape the 21st Century, April, p. 44.
Proposal for an Institution for Scientific Judgment, May, p. 5.
Synthesize to Survive, May, p. 20.
Product Performance of an Affluent Society, May, p. 28.
Technology's Year of Opportunity, May, p. 29.
Spinoffs Are Not Enough, May, p. 66.
Changing the R&D Course, July, p. 10.
Every Inch a Struggle, July, p. 31.
New Patterns for a Healthy Aviation, July, p. 66.
The Predicament of Mankind, Aug., p. 11.
Gaining a Political Voice, Aug., p. 20.
Space Cooperation: A Growing Political Force, Sept., p. 6.
Investments for Engineers, Sept., p. 66.
Engineering Societies Quiz the Presidential Candidates, Oct., p. 4.
Promises, Promises: Senate Bill S.32, Oct., p. 10.
Noise, A Triumph of Ignorance? (1972 Wright Brothers Lecture), Oct., p. 20.
Rocketry in the '50s, Oct., p. 38.
The Spartan Beginnings, Oct., p. 40.
Freedom to Act Fast, Oct., p. 41.
Political Bugs, Oct., p. 44.
Looking for the Sweet Combination, Oct., p. 52.
Breaching the Chinese Wall of 100 Approvals, Oct., p. 57.
Launch on December 63rd, Oct., p. 60.
Navy Within a Navy, Oct., p. 63.
Door to Back Rooms Opens a Crack, Nov., p. 7.
Federal R&D Taking new Directions, Nov., p. 10.
Overseas Competition Ganging Uv, Nov., p. 14.
The Issues Before Us, Dec., pp. 18-39.
Nixon's Next Four Years, Dec., p. 6.
DOT: Back to Basics, Dec. p. 13.

MILITARY AFFAIRS

Prototypes: The Fight to Switch, Jan., p. 9.
Understanding Weapons Development, Jan., p. 16.
Laser Weapons—Fancy or Fact?, Feb., p. 12.
Weapons Test Office Influencing Go-aheads, Feb., p. 8.
Strategic Posture: Political Necessity, Budget Realities, April, p. 6.
Arms Poll 5 to 2 for Missile Gap, April, p. 8.
The Rise of Remotely Manned Systems: Beginning a Series on the Tools That Will Shape the 21st Century, April, p. 44.
Navy Looks Toward New Forces, May, p. 13.
RMVs in Aerial Warfare, May, p. 36.
Propulsion to Orbit by Ground-Based Lasers, May, p. 74.
Evolving Strategic Air Power and B-1, June, p. 22.
With the 6th Fleet in the Mediterranean—An Outpost for the Designer, July, p. 32.
How Fast Do Fighter Costs Climb?, Aug., p. 4.
Conventional-War Strategy, Aug., p. 6.
The Impact of SALT, Aug., p. 71.
Improved Warhead "Only R&D", Sept., p. 13.
Space Observations, Disarmament, and the U.N., Sept., p. 60.
Elastic Surface Waves—Many New Applications, Nov., p. 50.
Simulation Aids for Designing Integrated Information Systems: ECSS Language, Nov., p. 68.
Issues Before Us.: National Security, Dec., p. 32.

PROPULSION AND POWER

What Can Nuclear Energy Do For Society?, Jan., p. 56.
What's Holding Nuclear Propulsion Back?, Jan., p. 62.
To Mars in 30 Days by Gas-Core Nuclear Rocket, Jan., p. 65.
Electric Propulsion, Feb., p. 23.
The Cleaning of America, Feb., p. 42.
The Prospects for Faster Ground Transportation, Feb., p. 52.
Superfan: Power for the Big Ones, April, p. 22.
Propulsion to Orbit by Ground-Based Lasers, May, p. 74.
Better Marks on Pollution for the SST, July, p. 37.
Laser Power Stations in Orbit, July, p. 43.
Advanced Propulsion Cleaner & Quieter, Aug., p. 37.
Aeroelasticity in Turbomachines—A Field All Aflutter, Sept., p. 56.
Transportation: Fueling the Right Growth, Nov., p. 12.

SPACE AND ATMOSPHERIC SCIENCE

Recent Progress and Future Prospects in High-Energy Astronomy, Jan., p. 24.
The Moon and Sixpence of Science, April, p. 16.
Spinoffs Are Not Enough, May, p. 66.
Progress in Study of Rarefield Flows, June, p. 19.
Toward Remotely Controlled Planetary Rovers, June, p. 42.
Harnessing the Sun, July, p. 6.
Space Observations of the Solar Corona, July, p. 24.
The Way with Astronomy, July, p. 41.
Accuracy of Outer-Planet Ephemerides, Aug., p. 63.
Mars—The View From Mariner 9, Sept., p. 26.
Exploiting Gravity Fields Less Than 1-G—Manufacturing in Space, Sept., p. 42.
Why Missions to Comets and Asteroids?, Oct., p. 12.
Two Early Missions to the Comets, Oct., p. 32.
The Best Way From Here to There (And Perhaps Back Again), Nov., p. 5.
Introducing the Electrostatic Autopilot, Nov., p. 22.
Planetary and Lunar Exploration, Dec., p.

SPACE SHUTTLE

The Shuttle—Congress Willing, Feb., p. 6.
Aerospace Leaders Acclaim Shuttle Decision, Feb., p. 7.
Shuttle Ascent Guidance and Control, Feb., p. 66.
Space Transportation—Bringing the Facts to the Public, March, p. 19.
Our Next Steps in Space, May, p. 56.
Propulsion to Orbit by Ground-Based Lasers, May, p. 74.
Space Shuttle: The Clean Machine, June, p. 6.
Shuttle Costs Shaping Up, May, p. 7.
Space Shuttle—The Most Important Aerospace Development, June, p. 20.
The Space Shuttle Will Cut Payload Costs, June, p. 50.
A Halo-Orbit Lunar Station, June, p. 59.
Space Observations of the Solar Corona, July, p. 24.
Space Shuttle—Beginning a New Era in Space Cooperation, Sept., p. 20.
Shuttle: Real Work on the Design Now Under Way, Nov., p. 8.
Shuttle Keys Back-to-Back Meetings, Dec., p. 35.

SPACECRAFT DESIGN AND PLANNING

To Mars in 30 Days by Gas-Core Nuclear Rocket, Jan., p. 65.
NASA Lowering Its Outer-Planet Sights, March, p. 12.
Water Recycling for Domestic Use, March, p. 44.
Prospective Space Developments—Blue Sky and Non-Blue Sky, April, p. 26.
Trends in Technology for Communications Satellites, April, p. 36.
ESRO Ponders an Uncertain Future, May, p. 15.
Our Next Steps in Space, May, p. 56.
Manipulator Systems Extend Man's Capabilities in Space, June, p. 30.
Toward Remotely Controlled Planetary Rovers, June, p. 42.
The Space Shuttle Will Cut Payload Costs, June, p. 50.
A Halo-Orbit Lunar Station, June, p. 59.
Two Zero-G Showers, June, p. 68.
Texts of the U.S.-Soviet Agreements on Cooperation in Space Exploration and in Science and Technology, July, p. 20.
Laser Power Stations in Orbit, July, p. 43.
Accuracy of Outer-Planet Ephemerides, Aug., p. 63.
1976 International Skylab?, Sept., p. 5.
Exploiting Gravity Fields Less Than 1 G—Manufacturing in Space, Sept., p. 42.
Space Observations, Disarmament, and the U.N., Sept., p. 60.
Why Missions to Comets and Asteroids?, Oct., p. 12.
Two Early Missions to the Comets, Oct., p. 32.
Mariner Jupiter-Saturn in 1977—The Mission Frame, Nov., p. 42.
Extraterrestrial Propellant Resupply for Advanced Manned Missions, Nov., p. 60.
Issues Before Us: Space Applications, Dec., p. 26.
Issues Before Us: Space Transportation, Dec., p. 30.

STRUCTURES AND MATERIALS

Application of Fracture Mechanics to the Estimation of Fatigue Life, April, p. 63.
Composites Lighter & Cheaper, Aug., p. 44.
Structural Synthesis, Aug., p. 66.

TESTING

Photographing Flow Fields and Heat-Transfer Patterns in Color Simultaneously, April, p. 54.
Pulsed T-Burner Testing of Combustion Dynamics of Aluminized Solid Propellants, April, p. 65.
R&D Pays Off for Inlet-Engine Matching, June, p. 64.
Toward a Viable System for Superior Test Capability, Aug., p. 18.
Holography for Aerodynamics, Aug., p. 56.
Aeroelasticity in Turbomachines—A Field All Aflutter, Sept., p. 56.

URBAN TECHNOLOGY

DOT R&D: Matching Policy and Dollars, Jan., p. 11.
AIAA and PTI Join Forces to Conduct 2nd Urban Technology Conference, Jan., p. 11.
Getting Whole Blood in Technical Transfusions, Jan., p. 19.
Creating New Cities Through the Large Air-Cushion Vehicle, Jan., p. 46.
What Can Nuclear Energy Do For Society?, Jan., p. 56.
The Cleaning of America, Feb., p. 42.
The Prospects for Faster Ground Transportation, Feb., p. 52.
Lifestyle Will Shape Transportation, Feb., p. 65.
NSF: More Money for Relevance, March, p. 10.
Technology and National Growth, March, p. 35.
Water Recycling for Domestic Use, March, p. 44.
Prospective Space Developments, Blue Sky and Non-Blue Sky, April, p. 26.
The Rise of Remotely Manned Systems: Beginning a Series on the Tools That Will Shape the 21st Century, April, p. 44.
The Crux of Saving the Cities, May, p. 10.
Synthesize to Survive, May, p. 20.
The Future of Technology, May, p. 26.
Engineers—Join the Revolution!, May, p. 27.
Product Performance of an Affluent Society, May, p. 28.
Spinoffs Are Not Enough, May, p. 66.
Technology's Year of Opportunity, May, p. 29.
Harnessing the Sun, July, p. 6.
Transpo '72 Reflects Battle of Priorities, July, p. 16.
Helicopters! To the Rescue at Major Air Terminals, Aug., p. 15.
Cleveland-Akron Section Weighs the Lake Erie International Jetport Project, Aug., p. 74.
Domsat: A Hold in the Countdown?, Sept., p. 11.
Noise, A Triumph of Ignorance? (1972 Wright Brothers Lecture), Oct., p. 20.
2nd Urban Technology Conference—Getting to Know Each Other Better, Nov., p. 16.
Aerospace and the Public Interest—The Issues Before Us, Dec., p. 18.
DOT: Back to Basics, Dec., p. 13.

AUTHORS

ALFORD, WILLIAM J. (see BRASLOW, ALBERT L.)

ANDERSON, JOHN L. and FINNEGAN, PATRICK M. Creating New Cities Through the Large Air-Cushion Vehicle, Jan., p. 46.

ANTL, ROBERT J. (see BEHEIM, MILTON A.)

ASHLEY, HOLT
1971 President's Annual Report, March, p. 52.
Federation—Why So Long?, Aug., p. 24.

AYERS, THEODORE G.
Supercritical Aerodynamics Worthwhile Over a Range of Speeds, Aug., p. 32.

BAGBY, FRED L.
1971 President's Annual Report, March, p. 52.
Every Inch a Struggle, July, p. 31.

BARGELLINI, PIER L. (see PRITCHARD, WILBUR L.)

BEHEIM, MILTON A., ANTL, ROBERT J., and POVOLNY, JOHN H.
Advanced Propulsion Cleaner & Quieter, Aug., p. 37.

BENNETT, ALBERT I.
A Portable-Pensions Resolution, March, p. 5.

BLAIR, JAMES C. (see LOVINGOOD, JUDSON A.)

BOEHM, BARRY W., KOSY, DONALD W., and NIELSEN, NORMAN R.
Simulation Aids for Designing Integrated Information Systems: The ECSS Language, Nov., p. 68.

BORMAN, FRANK
Civil Air Transport, March, p. 20.

BOURKE, ROGER D., MILES JR., RALPH F., PENZO, PAUL A., VAN DILLEN, SYLVIA L., and WALLACE, RICHARD A.
Mariner Jupiter Saturn 1977—The Mission Frame, Nov., p. 42.

BRASLOW, ALBERT L. and ALFORD, WILLIAM J.
Keeping Air Leadership, Aug., p. 26.

BRENNAN, DONALD G. (ee ROM, FRANK E., Jan., p. 62)

BRESLIN, JOHN
High-Speed Sea Craft, Sept., p. 16.

BROOKNER, ELI and GREY, JERRY
The Aerospace Profession in Retreat, Feb., p. 26.

BROWN, B. G. (see PRICE, E. W.)

BROWNE, SECOR
Civil Air Transport, March, p. 20.

BRUECKNER, GUENTER E.oSpace Observations of the Solar Corona, July, p. 24.

BUDGE, WILLIAM (see ROM, FRANK E., Jan., p. 62)

BURJORJEE, D. M.
Wiley Post, His "Winnie Mae," and the World's First Pressure Suit," Sept., p. 73.

CARR, PAUL H.
Elastic Surface Waves—Many New Applications, Nov., p. 50.

CATHERS, LINCOLM D.
Why All the Excitement About Aquaculture? May, p. 24.

CLARK, KENN E.
Electric Propulsion, Feb., p. 22.

COLE, EDWARD
Technology and National Growth, March, p. 35.

CORTRIGHT, EDGAR M.
The New Civil Aviation Within Our Grasp, Jan., p. 30.

Cortright Asks for AIAA Action Teams on "Purpose, Federation, and Communications," June, p. 72.
Aerospace and the Public Interest—The Issues Before Us, Dec., p. 18.

CREEL, THEODORE R. and HUNT, JAMES L.
Photographing Flow Fields and Heat-Transfer Patterns in Color Simultaneously, April, p. 54.

CRITES, ROGER, CZYSZ, PAUL and LYNCH, FRANCIS
R&D Pays Off for Inlet Engine Matching, June, p. 64.

CZYSZ, PAUL (see CRITES, Roger et al.)

DAVIES, MERTON E. and MURRAY, BRUCE C.
Space Observations, Disarmament, and the U.N., Sept., p. 60.

DE BELL, DAVID A.
Remote Viewing and Search, July, p. 57.

DEUTSCH, STANLEY and HEER, EWALD
Manipulator Systems Extend Man's Capabilities in Space, June, p. 30.

DOMINICK, PETER H.
A A Arms Poll 5 to 2 for Missile Gap, April, p. 10.

DREW, RUSSELL C. (see ROM, FRANK E., Jan., p. 62).

DUGGER, GORDON L.
1971 President's Annual Report, March, p. 52.
What Journal Changes Would Best Serve You While Countering Rising Publications Costs, April, p. 56.
AIAA Publications Alive and Well, Oct., p. 18.
Results of the Questionnaire on Publications, Oct., p. 70.

DUNCOMBE, R. L., KLEPCZYNSKI, W. J. and SEIDELMANN, P. K.
Accuracy of Outer-Planet Ephermerides, Aug., p. 63.

FARQUHAR, ROBERT W.
A Halo-Orbit Lunar Station, June, p. 59.

FARQUHAR, ROBERT W. and NESS, NORMAN F.
Two Early Missions to the Comets, Oct., p. 32.

FERRI, ANTONIO
Better Marks on Pollution for the SST, July, p. 37.

FINNEGAN, PATRICK M. (see ANDERSON, JOHN L.)

FLEETER, SANFORD
Aeroelasticity in Turbomachines—A Field All Aflutter, Sept., p. 56.

FLETCHER, JAMES (see BROOKNER, ELI).

FOX, BERTRAND
Technology and National Growth, March, p. 35.

FRASER, DONALD C.
Onboard Digital Computers for Guidance and Control, Aug., p. 22.

FRIEDMAN, HERBERT
Recent Progress and Future Prospects in High-Energy Astronomy, Jan., p. 24.

FRIEZE, CONRAD R.
Air Cargo Confidence, May, p. 48.

FRISCH, BRUCE H.
Report on the Vehicle Technology Conference—Future Shock at Langley, Jan., p. 35.
Transpo '72 Reflects Battle of Priorities, July, p. 16.
IAS' 40th Anniversary, Nov., p. 77.
Shuttle Keys Back-to-Back Meetings, Dec., p. 35.

GABRIEL, DAVID S. (see ROM, FRANK E., Jan., p. 62)

GALLAGHER, RICHARD H.
Structural Synthesis, Aug., p. 66.

GEISSLER, ERNST D. (see LOVINGOOD, JUDSON A.)

GESSOW, ALFRED
Is Aerospace Engineering Obsolete? June, p. 18.

GOBLE, ROSS L.
Composites Lighter & Cheaper, Aug., p. 44.

GOLAND, MARTIN
Let's Beat the System, Jan., p. 29.
1971 President's Annual Report, March, p. 52.
The Revolt of the Engineers, April, p. 14.

GOLDBURG, ARNOLD
Climatic Impact Assessment for High-Flying Aircraft Fleets, Dec. p. 56.

GOLDWATER, BARRY
A/A Arms Poll 5 to 2 for Missile Gap, April, p. 9.

GRAHAM, WILLIAM B.
RMVs in Aerial Warfare, May, p. 36.

GRAY, ROBERT M. (see HUNTER II, MAXWELL W.)

GREATHOUSE, WILLIAM
Superfan: Power for the Big Ones, April, p. 22.

GREENE, TERRELL E.
The Rise of Remotely Manned Systems: Beginning a Series on the Tools That Will Shape the 21st Century, April, p. 44.

GREY, JERRY (see BROOKNER, ELI).

HALTON, C. C.
Canada's Head Start in STOL, Jan., p. 39.

HANSEN, C. FREDERICK and LEE, GEORGE
Laser Power Stations in Orbit, July, p. 42.

HARFORD, JAMES J.
Momentum to New Projects—AIAA Board Report, March, p. 16.
AIAA Studying Washington Office, May, p. 77.
Washington Office Approved, Sept., p. 14.
ICAS Tracks Noise, SST and HST, and V/STOL, Nov., p. 75.

HAZEN, DAVID C.
1971 President's Annual Report, March, p. 52.
High School Members for AIAA, Nov., p. 21.

HEER, EWALD (see DEUTSCH, STANLEY)

HEINEMANN, EDWARD H.
With the 6th Fleet in the Mediterranean—An Outpost for the Designer, July, p. 32.

HEPPENHEIMER, THOMAS A.
Extraterrestrial Propellant Resupply for Advanced Manned Missions, Nov., p. 60.

HEWITT, WILLIAM (see BROOKNER, ELI).

HILL, MAYNARD L.
Introducing the Electrostatic Autopilot, Nov., p. 22.

HINNERS, NOEL W. and MASON, PETER V.
The Apollo 17 Surface Experiments, Dec., p. 40.

HOOD, RAY V.
Active Controls Changing the Rules of Structural Design, Aug., p. 50.

HUGHES, HAROLD E.
Synthesize to Survive, May, p. 20.

HUNT, JAMES L. (see CREEL, THEODORE R.)

HUNTER II, MAXWELL W., MILLER, WAYNE F., and GRAY, ROBERT M.
The Space Shuttle Will Cut Payload Costs, June, p. 50.

JACKSON, BRUCE B.
Implications of Computers Telephone Size, Jan., p. 20.

JACKSON, HENRY M.
A A Arms Poll 5 to 2 for Missile Gap, April, p. 8.

JONES, ROBERT T.
New Design Goals and a New Shape for the SST, Dec., p. 66.

KANTROWITZ, ARTHUR
Propulsion to Orbit by Ground-Based Lasers, May, p. 74.
Proposal for an Institution for Scientific Judgment, May, p. 5.

KLEPCZYNSKI, W. J. (see DUNCOMBE, R. L.)

KOHLMAN, DAVID
Is Aerospace Engineering Obsolete? June, p. 17.

KOLK, FRANKLIN W.
Noise, A Triumph of Ignorance? (1972 Wright Brothers Lecture), Oct., p. 20.

KOSY, DONALD W. (see BOEHM, BARRY W.)

LAYTON, J. PRESTON
Space Transportation—Bringing the Facts to the Public, March, p. 19.
Our Next Steps in Space, May, p. 56.

LEE, GEORGE (see HANSEN, C. FREDERICK)

LICKLEY, ROBERT L.
New Patterns for a Healthy Aviation, July, p. 66.

LITCHFORD, GEORGE B.
Helicopters! To the Rescue at Major Air Terminals, Aug., p. 15.

LOVINGOOD, JUDSON A., BLAIR, JAMES C., and GEISSLER, ERNST D.
Shuttle Ascent Guidance and Control, Feb., p. 66.

LUCAS, WILLIAM R.
Political Bugs, Oct., p. 44.

LUKASIEWICZ, J.
Toward a Viable System for Superior Test Capability, Aug., p. 18.

LYNCH, FRANCIS (see CRITES, ROGER)

MADDEN, O. H. (see PRICE, E. W.)

MAGRUDER, WILLIAM M.
Civil Air Transport, March, p. 20.
Technology and National Growth, March, p. 35.

MANHEIMER, BERNARD
Tax-Free Professional Societies: Time to Earn Their Subsidy, Feb., p. 14.

MARSH, ROBERT T.
The Issues Before Us: National Security, Dec., p. 32.

MASON, PETER V. (see HINNERS, NOEL W.)

MATHES, H. B. (see PRICE, E. W.)

MATHEWS, CHARLES W.
The Issues Before Us: Air Transportation, Dec., p. 26.

McCORMACK, MIKE
Technology and National Growth, March, p. 35.

MEIROVITCH, LEONARD
Spacecraft Attitude Stability and Control, March, p. 18.

MEYERSON, MARTIN
Getting Whole Blood in Technical Transfusions, Jan., p. 19.

MILES, RALPH F. (see BOURKE, ROGER D.)

MILLER, WAYNE F. (see HUNTER II, MAXWELL W.)

MOORE, JESSE W.
Toward Remotely Controlled Planetary Rovers, June, p. 42.

MORSE, FRANCIS, O'HARA, GEORGE J., PAVLECKA, VLADIMIR H., STEHLING, KURT R., and VAETH, J. GORDON
Dirigibles: Aerospace Opportunities for the '70s and '80s, Nov., p. 32.

MUELLER, GEORGE E.
Space Shuttle—Beginning a New Era in Space Cooperation, Sept., p. 20.

MUELLER GEORGE (see BROOKNER, ELI)

MURRAY, BRUCE C. (see DAVIES, MERTON E.)

MUSKIE, EDMUND S.
A/A Arms Poll 5 to 2 for Missile Gap, April, p. 13.

MYER, JOHN H.
Two Zero-G Showers, June, p. 68.

NESS, NORMAN F. (see FARQUHAR, ROBERT W.)

NEWBAUER, JOHN
The Way with Astronomy, July, p. 41.

NIELSEN, J. N. (see SPANGLER, S. B.)

NIELSEN, NORMAN R. (see BOEHM, BARRY W.)

O'HARA, GEORGE J. (see MORSE, FRANCIS et al.)

PAVLECKA, VLADIMIR H. (see MORSE, FRANCIS et al.)

PENZO, PAUL A. (see BOURKE, ROGER D.)

PERKINS, COURTLAND D.
Space Shuttle—The Most Important Aerospace Development, June, p. 20.

PHILLIPS, SAMUEL C.
Launch on December 63rd, Oct., p. 60.

PICKERING, WILLIAM H.
Freedom to Act Fast, Oct., p. 41.

POPE, ALAN
Investments for Engineers, Sept., p. 66.
A Message from the AIAA Pension Committee, Oct., p. 68.

POTTER, GEOFFREY A.
VEST Enrollments Stay High, July, p. 76.

POTTER, J. LEITH
Progress in Study of Rarefied Flows, June, p. 19.

POWNALL, THOMAS (see BROOKNER, ELI)

PRESCOTT, ROBERT W.
Civil Air Transport, March, p. 20.

PRICE, E. W., MATHES, H. B., MADDEN, O. H., and BROWN, B. G.
Pulsed T-Burner Testing of Combustion Dynamics of Aluminized Solid Propellants, April, p. 65.

PRITCHARD, WILBUR L. and BARGELLINI, PIER L.
Trends in Technology for Communications Satellites, April, p. 36.

PRITZLAFF, JOHN A.
Remote Work and Manned Vehicles, July, p. 64.

PROXMIRE, WILLIAM
A/A Arms Poll 5 to 2 for Missile Gap, April, p. 13.

PUCKETT, ALLEN E.
A Vital Message to Carry, Feb., p. 24.
Enthusiasm with Restraint, April, p. 24.
Space and International Cooperation—Impetus from the New Accord, Sept., p. 19.

RABORN, WILLIAM F.
Navy Within a Navy, Oct., p. 63.

RAGENT, BORIS
Spinoffs Are Not Enough, May, p. 66

RAGSDALE, ROBERT G.
To Mars in 30 Days by Gas-Core Nuclear Rocket, Jan. p. 65.

RALPH, JAMES A.
1976 International Skylab? Sept., p. 5.

RAUCH, HERBERT E.
The Best Way from Here to There (And Perhaps Back Again), Nov., p. 5.

ROM, FRANK E.
What Can Nuclear Energy Do for Society? Jan., p. 56.

ROM, FRANK E., DREW, RUSSELL C., GABRIEL, DAVID S., BUDGE, WILLIAM, and BRENNAN, DONALD G.
What's Holding Nuclear Propulsion Back? Jan., p. 62.

ROSEN, MILTON W.
The Spartan Beginnings, Oct., p. 40.

RUMMEL, ROBERT W.
1971 President's Annual Report, March, p. 52.

SAGAN, CARL
The View from Mariner 9, Sept., p. 26.

SANGER, FRANK M.
The Un-Man in the Sea, July, p. 56.

SCHAIRER, GEORGE
Civil Air Transport, March, p. 20.

SCHMIDT, CARL F.
Operational Constraints in Air Transport, Jan., p. 22.

Engineers—Join the Revolution! May, p. 27.
Aircraft Designers Engage the System, July, p. 22.

SCHRIEVER, BERNARD A.
Breaching the Chinese Wall of 100 Approvals, Oct., p. 57.

SCHWARTZ, MARTIN W.
Application of Fracture Mechanics to the Estimation of Fatigue Life, April, p. 63.

SEIDELMANN, P. K. (see DUNCOMBE, R. L.).

SILVER, BRENT W.
Is Aerospace Engineering Obsolete? June, p. 14.

SINGER, S. FRED
Product Performance of an Affluent Society, May, p. 28.
The Predicament of Mankind, Aug., p. 11.

SKLARSKY, GERALD
Gaining a Political Voice, Aug., p. 20.

SLOOP, JOHN L.
Looking for the Sweet Combination, Oct., p. 52.

SLOTKIN, ARTHUR L.
New Blood Drying Up, Jan., p. 13.
Secrets of the Winningest Student Chapter, April, p. 70.
ESRO Ponders an Uncertain Future, May, p. 15.

SMITH, BERNARD
Understanding Weapons Development, Jan., p. 16.
Sailing Blimp for Real Salts, May, p. 6.

SMITH, MARION L.
On the Job Market for Engineering Graduates, Feb., p. 5.

SNYDER Jr., MELVIN H.
Is Aerospace Engineering Obsolete? June, p. 15.

SPANGLER, S. B. and NIELSEN, J. N.
Theoretical Investigation of the Aerodynamic Characteristics of All-Flexible Parawings, April, p. 60.

SQUIRE, WILLIAM
How Fast Do Fighter Costs Climb?, Aug., p. 4.

STEHLING, KURT (see MORSE, FRANCIS et al.)

STEWART, JAMES T.
Evolving Strategic Air Power and B-1, June, p. 22.

SUTTON, GEORGE W.
The Future of Technology, May, p. 26.

TOWER, JOHN G.
A/A Arms Poll 5 to 2 for Missile Gap, April, p. 12.

THURMOND, STROM
A/A Arms Poll 5 to 2 for Missile Gap, April, p. 11.

TROLINGER, J. D.
Holography for Aerodynamics, Aug., p. 56.

UCHIDA, HIROSHI
Technology and National Growth, March, p. 35.

UHRICH, RICHARD
Remote Recovery, July, p. 59.

VAETH, J. GORDON (see MORSE, FRANCIS et al.)

VAN DILLEN, SYLVIA L. (see BOURKE, ROGER D.)

VON BRAUN, WERNHER
Prospective Space Developments, Blue Sky and Non-Blue Sky, April, p. 26.

WALLACE, RICHARD A. (see BOURKE, ROGER

WASSERBURG, G. J.
The Moon and Sixpence of Science, April, p. 16.

WEINSTEIN, RICHARD H.
Water Recycling for Domestic Use, March, p. 44.

WELLING, CONRAD G.
Remote Ocean Mining, July, p. 62.

WHIPPLE, FRED L.
Why Missions to Comets and Asteroids? Oct., p. 12.

WILD, JOHN M.
Is Aerospace Engineering Obsolete?, June, p. 15.

WILLIAMS, LAURENCE O.
The Cleaning of America, Feb., p. 42.

WILSON, T. A.
The Issues Before Us: Air Transportation, Dec., p. 22.

WINPISINGER, WILLIAM (see BROOKNER, ELI)

WINTER, FRANK H.
An Aerospace Chronology, Sept., p. 71.
An Aerospace Chronology, Oct., p. 66.
An Aerospace Chronology, Nov., p. 41.

WUENSCHER, HANS F.
Exploiting Gravity Fields Less Than 1 G—Manufacturing in Space, Sept., p. 42.

YARDLEY, JOHN F.
The Issues Before Us: Space Transportation, Dec., p. 30.

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION
(Act of August 12, 1970: Section 3685, Title 39, United States Code)

1. TITLE OF PUBLICATION: ASTRONAUTICS & AERONAUTICS
2. DATE OF FILING: October 1, 1971
3. FREQUENCY OF ISSUE: Monthly

4. LOCATION OF KNOWN OFFICE OF PUBLICATION
Chestnut & 56th, Philadelphia, Pa. 19139

5. LOCATION OF THE HEADQUARTERS OR GENERAL BUSINESS OFFICES OF THE PUBLISHERS (Not Printers)
1290 Sixth Avenue, New York, N.Y. 10019

6. NAMES AND ADDRESSES OF PUBLISHER, EDITOR, AND MANAGING EDITOR

PUBLISHER
James J. Harford
American Institute of Aeronautics and Astronautics Inc.,
1290 Sixth Avenue
New York, N. Y. 10019

EDITOR
John Newbauer, 1290 Sixth Avenue, New York, N. Y. 10019

MANAGING EDITOR
Bruce Frisch
1290 Sixth Avenue
New York, N. Y. 10019

7. OWNER: American Institute of Aeronautics and Astronautics Inc., 1290 Sixth Avenue, New York, N. Y. 10019

8. KNOWN BONDHOLDERS, MORTGAGEES, AND OTHER SECURITY HOLDERS OWNING OR HOLDING 1 PERCENT OR MORE OF TOTAL AMOUNT OF BONDS, MORTGAGES OR OTHER SECURITIES: NONE

9. FOR COMPLETION BY NONPROFIT ORGANIZATIONS AUTHORIZED TO MAIL AT SPECIAL RATES (132.122, Postal Manual)
The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes
(Check one)
☒ Have not changed during preceding 12 months
☐ Have changed during preceding 12 months
(If changed, publisher must submit explanation of change with this statement.)

10. EXTENT AND NATURE OF CIRCULATION

	Average No. Copies Each Issue During Preceding 12 Months	Single Issue Nearest to Filing Date
a. TOTAL COPIES PRINTED (Net Press Run)	35,017	34,100
B. PAID CIRCULATION		
1. SALES THROUGH DEALERS AND CARRIERS, STREET VENDORS AND COUNTER SALES	None	None
2. MAIL SUBSCRIPTIONS	32,841	31,961
C. Total Paid Circulation	32,841	31,961
D. FREE DISTRIBUTION (including samples) BY MAIL, CARRIER OR OTHER MEANS	1,334	1,395
E. TOTAL DISTRIBUTION (Sum of C and D)	34,175	33,356
F. OFFICE USE, LEFT-OVER, UNACCOUNTED, SPOILED AFTER PRINTING	842	744
G. TOTAL (Sum of E & F—should equal net press run shown in A) 35,017		34,100

I certify that the statements made by me above are correct and complete.

Nelson W. Friedman
Circulation Manager

PROFESSORS

The Department of Aerospace Engineering at Iowa State University, Ames, Iowa is contemplating two professorship appointments to start either in July or September, 1972. Only persons with doctorate and some university teaching experience and industrial experience will be considered. Rank, tenure, and salary will depend on background. Assignments will be for teaching at grad and undergrad levels plus research. One position is for an aerodynamicist, who can also teach aero heating, and or space technology, and who will be responsible for operations research of hypersonic tunnel and light gas gun facilities. The other will be expert in aero structures, elasticity, structural dynamics and will be responsible for structures lab. An equal opportunity employer. Write Dr. R. F. Brodsky, Professor and Head.

Index to advertisers

ADVERTISING HEADQUARTERS
1290 Sixth Ave., N.Y., N.Y. 212-581-4300

Richard D. Raymond, Director of Advertising

Roberta Hulsmann, Advertising Production

Delft University of Technology 5
Albert Milhado & Co., Amsterdam, Holland
Iowa State University 80
The Singer Co.-Kearfott Div .....2nd Cover
Gaynor & Ducas Adv., New York, N.Y.
United Technology Center .....4th Cover
Hoefer, Dieterich & Brown, Inc., San Francisco, Calif.